

## RADIOCHEMISTRY TECHNICIAN JOB PERFORMANCE MEASURE

**TASK CODE:** TRC-A06

**TASK:** Maintain Radiochemistry Laboratory Equipment

**NAME:** \_\_\_\_\_ **SSN:** \_\_\_\_\_

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### REFERENCES:

1. WP 12-RL1014, Routine Laboratory Operation
2. WP 12-IS1815, Laboratory Fume Hood Annual Face Velocity Test Procedure
3. Barnstead Nanopure Deionized Water System Operations Manual
4. CEM Microwave Operations Manual MDS-2100
5. GAST Manufacture Corporation 70-5000 Technical Manual
6. Fisher Scientific 6K Centrifuge User's Manual
7. Thermodyne Type F6000 Furnace Operations Manual
8. Corning pH-30 Maintenance Guide

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### TERMINAL OBJECTIVE:

Given the following Radiochemistry Laboratory equipment, perform required maintenance for optimal equipment performance and efficiency.

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|------------------------------|----------------------------------|
| 1. pH Meters                 | 6. Vacuum Pump                   |
| 2. Fume Hoods                | 7. Air Compressor                |
| 3. Water Purification System | 8. Furnace                       |
| 4. Microwave                 | 9. Balances                      |
| 5. Centrifuge                | 10. Conductivity Indicator (TDS) |

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### CONSEQUENCES OF INADEQUATE PERFORMANCE:

Improper equipment operation  
Equipment Damage

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### HAZARDS (PERSONNEL/EQUIPMENT STATUS):

None

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### PRE-REQUISITE TRAINING/ TASK COMPLETION:

1. CF 4.00 Series

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**TOOLS/EQUIPMENT (MATERIALS REQUIRED):**

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|--------------------------------------|--|
| 1. pH Meters/buffer solutions        | 6. Vacuum Pump/filters & gaskets           |
| 2. Fume Hoods                        | 7. Air Compressor/filters & gaskets        |
| 3. Water Purification System/filters | 8. Furnace                                 |
| 4. Microwave                         | 9. Balances/weights                        |
| 5. Centrifuge/cleaning agents        | 10. Conductivity Indicator (TDS)/solutions |
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**Instructions to Trainee:** You shall acquire the necessary references and equipment, and complete all required documentation. Knowledge requirements shall be completed with 80% or greater accuracy. Critical step performance shall be completed with 100% accuracy.

**Instructions to JPM Evaluator:** The trainee is to perform the terminal objective, without assistance, on the job site. Provide clarification of requirements if requested by the trainee. You are encouraged to ask relevant questions to verify trainee understanding. If the trainee fails this JPM, clearly document the reason for failure and forward to the trainee's manager. Successful completion of this JPM shall be recorded on the trainee's qualification card.

**KNOWLEDGE REQUIREMENTS:**

Reference	Knowledge Requirement	Pass/Fail
8	State the intended use of the pH meter.	
2	Describe the basic use of each of the fume hoods.	
2	Discuss the implications of the sash being higher than allowed.	
2	State who is responsible for performing the face velocity check of the hood.	
3	Describe the basic procedure for operating the Water Purification System.	
3	State the criteria for replacing the Water Purification System filter.	
3	Describe the importance of performing a resistivity check of the Water Purification System.	
4	Discuss the maintenance requirements for the microwave.	
6	State the lubrication requirements for the centrifuge.	
6	Describe the maintenance requirements for the centrifuge.	
5	Describe the maintenance requirements for the Vacuum Pump.	
5	Describe the maintenance requirements for the Air Compressor.	

4,6,7	State the cleaning requirements for the microwave, the centrifuge and the furnace.	
Reference	Knowledge Requirement	Pass/Fail
7	Discuss the effect on the element if the furnace is heated and cooled in a short period of time.	
1	State the frequency of performing operational checks on a balance.	
1	Describe the documentation requirements associated with the balance.	
1	Discuss the operational checks required prior to using a balance.	
8	State the intended use of the conductivity meter (TDS).	

**PERFORMANCE REQUIREMENTS:**

Reference	Performance Requirement	Pass/Fail
8	Buffer a pH meter.#	
2	Verify the fume hood face velocity check is current.#	
2	Open the fume hood no higher than the allowed position.#	
3	Obtain deionized water by operating the Water Purification System.#	
3	Check the resistivity of the water while using the Water Purification System.#	
3	Change out a Water Purification System filter.#	
4	Verify the microwave door, door seals and door interlocks are clean and operating properly.#	
4	Clean the microwave cavity, the exhaust screen and the vent tube.#	
6	Clean all anodized parts of the centrifuge with neutral cleaning agents.#	
6	Treat all anodized parts of the centrifuge with anti-corrosion oil.#	
7	Run the furnace at 1600°F for 4 hours.#	
1	Perform a preoperational check and leveling of the balance.#	
1	Startup the balance.#	
1	Perform a calibration check of the balance.#	
1	Perform a reference check of the balance.#	
1	Complete the required documentation for the operational checks of the balance.#	

1	Weigh an object, container and chemicals with the balance.#	
1	Shutdown the balance.#	

# indicates a critical step

**FINAL EVALUATION:**

PASS

FAIL

**COMMENTS:**

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**EVALUATOR SIGNATURE:**

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**DATE:**\_\_\_\_\_

**TRAINEE SIGNATURE:**

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**DATE:**\_\_\_\_\_

**MANAGER SIGNATURE:**

\_\_\_\_\_

**DATE:**\_\_\_\_\_